

NOISE RESPONSES

Request #69 - Please provide estimates of in-plant noise levels during operation.

Response #69 - During normal operation, all outdoor areas within the plant, even those immediately adjacent to major pieces of equipment are expected to have noise levels of 85 dBA or less because of the many noise barriers, enclosures, and other forms of mitigation that will be installed to minimize far-field plant noise levels. In general, most areas should be in the 65 to 75 dBA range. Higher levels, generally in the 85 to 95 dBA range, are likely inside the noise control barriers and enclosures. However, during normal operation it will not be necessary for plant personnel to enter these areas except occasionally to conduct brief inspections or carry out minor maintenance. Nevertheless, these areas will be designated as requiring ear protection.

Request #70 - Please provide estimates of noise levels for construction of all linear facilities.

Response #70 - Construction of the natural gas and non-reclaimable wastewater pipelines between the site and various tie-in points will generate a variable amount of noise on a short-term basis as each construction phase proceeds past a particular location. It is anticipated that the most significant source of noise will be a backhoe/front end loader, to be used for trenching, lowering pipe sections, backfilling, and final grading. Noise produced during these operations varies continuously, but an intermittent maximum level of no more than 85 dBA at 50 ft. is expected (Barnes, et al., 1977). Portable generators are also likely to be used as the pipe sections are welded together. A more or less steady noise level of approximately 81 dBA at 50 ft. during this phase can be expected.

Construction of the overhead transmission line connecting the IEEC switchyard to the SCE Valley substation will generate some noise in the immediate vicinity of each tower as it is erected and the lines are strung. The principal source of noise during tower construction is most likely to be a mobile crane, which, assuming a 20-ton capacity rating, can be expected to intermittently produce a maximum noise level of about 83 dBA at 50 ft. during lifts and significantly lower levels (5 to 15 dBA less) the majority of the time as the engine idles. Prior to steel erection some noise may also be generated as the footings are augured and subsequently filled with concrete. It is estimated that both foundation drilling and concrete pouring will each produce an approximate maximum sound level of 85 dBA at 50 ft. on an intermittent basis.

Request #71 - Please provide estimates of existing and future switchyard noise levels.

Response #71 - Measurements of existing noise levels at the SCE Valley Substation were recently taken and the data are presented in Table 71-1. The substation was generally inaudible because it was masked by traffic noise from Meniffee Road and Route 74. The data indicated a level of about 41 dBA to be representative of the transformer noise at a distance of about 700 feet from the transformers. The nearest residence is at least 1500 feet from the transformers.

Because no new transformers, usually the dominant source of noise at such a facility, will be needed to accommodate the IEEC tie-in, future noise levels in and near the substation are not expected to change in any substantial way. Consequently, no new or different environmental noise impact is anticipated at the substation as a result of the project.

Table 71-1
SCE Valley Substation Noise Levels
5-Minute L_{eq} and Statistical Levels (dBA)

Date	Hour	L_{eq}	L_{10}	L_{50}	L_{90}
1/29/02	1800	67.5	71.9	65.2	52.7
1/30/02	0200	53.1	55.9	44.7	40.8
1/30/02	0900	66.1	69.9	62.7	58.5
1/30/02	1400	73.9	70.5	62.3	55.6
Average		65.2	67.1	58.7	51.9

Notes:

1. Measurement position was 100 feet west of Meniffee Road and about 700 feet east of the existing transformers.
2. Traffic on Meniffee Road was dominant source of noise.
3. Substation was only audible during the 0200 reading on 1/30/02 in the absence of traffic noise.
4. The L_{90} level of 40.8 dBA at 0200 best represents the noise level of the substation at the location.

Request #72 - For the major noise sources of the project, please provide the noise levels generated at a standard distance such as 50 feet.

Response #72 - As delineated in Table 5.9-10, all of the major plant components that normally produce significant noise in a plant of this type will be modified or improved to reduce noise so that overall plant sound levels at the nearest sensitive receptors are limited to permissible levels. It is estimated that the mitigated, as-built noise level at 50 ft. from the major equipment will be as follows.

Table 72-1
Estimated As-built Noise Levels at 50 ft. from Major Plant Equipment During Normal Operation

Plant Component	Estimated Noise Level at 50 ft.
Cooling Tower (south side beyond noise barrier wall)	55 dBA
Cooling Tower (north side)	70 dBA
HRSG Walls	65 to 70 dBA
CTG Packages	75 dBA
STG Structure and Enclosures	65 dBA
Main Transformers (outside noise barriers)	65 dBA

Request #73 - Please provide a discussion of the potential for generation of tonal frequency components of these sources.

Response #73 - This issue has been addressed in Section 5.9.3.3.4 of the AFC. In general, it is the intent of the Applicant to take appropriate actions in the design and specification phase of the project to pro-actively mitigate potential sources of tonal noise in order to minimize the possibility of perceptible tones beyond the site boundaries. In particular, the sources listed in Table 73-1 sometimes generate tones that are audible in the far field, when installed

in a conventional manner without noise mitigation. Anticipated noise controls for each source intended to reduce both the broadband and tonal content of each source's noise emissions are also listed.

Table 73-1

Potential Sources of Tonal Noise Emissions and Anticipated Mitigation

Plant Component	Anticipated Improvement to Mitigate Possible Tonal Content
Transformers	Noise Barrier Walls
Combustion Turbine Inlets	Appropriate Inlet Silencing
Boiler Feedwater Pump Motors	Acoustically Treated Pumphouses
Circulating Water Pump Motors	Noise Barrier Walls
Cooling Tower Gearboxes and Motors	Tones Prohibited by Purchase Specification

Request #74 - Please provide a discussion of the potential noise effects associated with steam blows for the proposed project at the nearest sensitive receptors. Include estimates of steam blow noise levels, their effects, and any proposed mitigation measures.

Response #74 - Towards the end of plant construction, when the combustion turbine power trains are operational, it is necessary to thoroughly clean out any remaining construction debris from all the major steam lines before they are connected to the steam turbine. Without this cleaning the fragile blades of the steam turbine would be quickly damaged or destroyed by solids entrained in the input steam. The clean out process involves pressurizing the lines between an HRSG and the steam turbine with steam and releasing it to atmosphere through temporary turbine bypass piping. A number of releases are carried out over a prescribed range of pressures until polished impingement plates, or targets, placed in the flow near the discharge indicate that pitting from debris impact has ceased and that the lines are clean. Water is normally injected into the temporary piping to absorb energy, accelerate condensation and reduce noise.

In order to minimize community disturbance from this activity a temporary blowdown silencer will be used at the terminus of the discharge piping, which will most likely be located at ground level near the auxiliary boiler between the steam turbine structure and the cooling tower. It is anticipated from information provided by silencer suppliers that with a good quality silencer a maximum noise level of approximately 86 dBA at 100 ft. can be realized compared to unsilenced levels of well over 110 dBA at the same distance. Taken together with its expected frequency content this silenced performance translates to a sound power level of approximately 122 dBA re 1 pW.

To assess the impact of such a noise source on the surrounding sensitive receptors the plant noise model was modified to represent this situation; specifically, the northern CTG/HRSG powertrain was assumed to be operating normally and a source was added representing the steam blow silencer discharge at the above sound power level. In such a scenario the second CTG, the STG and cooling tower would not be operating and were turned off in the model.

At the four nearest residential receptor locations the following noise levels are estimated during each steam blow assuming the actual performance of the steam blow silencer is comparable to supplier estimates.

Table 74-1
Estimated Total Facility Noise Levels at Nearest Sensitive Receptors
during Steam Line Clean-out Blows

Location	Estimated Energy Center Noise Level, dBA
DP-1. Ethanac Road	48
DP-2. McLaughlin & Dawson Roads	48
DP-3. McLaughlin & Palomar Roads	48
DP-4. Highway 74 North of Site	47

Because only a portion of the plant is operating simultaneously with each steam blow, the overall plant noise levels are expected to be somewhat higher but generally comparable to those of the complete plant operating at normal load. Moreover, it is the Applicant's intent to carry out these operations during daytime hours to minimize possible disturbance. Consequently, no significant adverse impact is anticipated from this short-lived phase of commissioning.

Request #75 - If pile driving is planned during construction, please provide estimates of noise and vibration levels at the nearest sensitive receptors.

Response #75 - No pile driving is planned during construction of the IEEC.

Request #76 - Please perform two 25-hour noise measurements to determine the existing community ambient conditions. Locations for these measurements shall be as follows: one location shall be within the Romoland community that will minimize noise from traffic along Highway 74. The second location is to be selected within the Romoland Elementary School property, also selected to minimize noise from traffic along Highway 74 while allowing a determination of power plant impacts after the plant has begun operations.

Response #76 - In response to Data Requests 76, additional noise monitoring was performed in the Community of Romoland to characterize the noise environment at the Romoland Elementary School and at a point within the community distant from Highway 74. The survey was conducted over a 25-hour period starting at 2 p.m. (1400) on January 29, 2002 and ending at 3 p.m. (1500) on January 30, 2002. A brief description of each monitoring location and the types of sounds heard during the survey are presented below.

Location 1 – In side yard of residence at Antelope Road and Adams Road at the northwest corner of the Romoland Elementary School. The microphone was attached to a branch of a palm type tree in the yard with a clear line-of-sight to the school across the street. Sources of noise included traffic on the local streets as well as on Highway 74, distant roosters, dogs, children playing, and jet aircraft utilizing March ARB to the north.

Location 2 – Further north on Antelope Road at the intersection of 3rd Street at the northeast corner of the densest residential portion of Romoland. The location is about 3100 feet north of the power plant site. The microphone was attached to a guywire of a

power pole at the intersection. Sources of noise were the same as at Location 1 except that there was fewer children playing near the microphone.

Noise Survey Methodology

Continuous measurements of the A-weighted sound level were made simultaneously over the complete 25-hour period using two (2) Larson-Davis Laboratories Model 820 sound level meters (LDL 820) with integral data loggers. The instruments are Type I precision integrating sound level meters meeting ANSI Standard S1.4-1983. The microphones were remotely mounted (via a 10-foot microphone extension cable and preamplifier) at a height of about 5 feet above the ground. Foam windscreens, 3½ inch in diameter, were used to reduce wind-generated noise.

The calibration levels of the instruments were checked before and after the 25-hour monitoring period using a B&K Type 4230 sound level calibrator. The analyzers were internally timed to turn on at 1400 (2 p.m.) on January 29, 2002 and off at 1500 (3 p.m.) on January 30, 2002. They were generally unattended during the monitoring period, but the monitoring technician did visit each site five times to make observations about sounds heard and general weather conditions.

The LDL 700's were programmed to measure and record the equivalent sound level (L_{eq}) for each minute of the 25-hour period as well as compute and store the statistical sound levels exceeded 10, 50 and 90 percent of each hour (L_{10} , L_{50} and L_{90}). The L_{eq} for each hour of the period was also computed and recorded. At the end of the 25-hour period, the data were downloaded directly into a laptop computer for storage and further analysis, including computation of the 24-hour L_{eq} , day/night level (L_{dn}), and the community noise exposure level (CNEL). A spreadsheet program was used to produce graphs of the data. One graph was produced of the 1-minute L_{eq} levels to show the often rapid variation in sound levels experienced in outdoor environments. Another graph was produced of the hourly L_{eq} levels and the L_{50} and L_{90} statistical sound levels showing all three curves in the same plot. All of the hourly data is also presented in tabular format.

Noise Survey Results

Weather conditions during the survey were generally cold with moderate humidity and calm to high winds. Temperatures ranged from 35 to 50 degrees, humidity levels from 16 to 60 percent, and winds were calm to about 14 mph and were generally out of the east to northwest. Skies were clear and to mostly cloudy and there were brief periods of snow and rain. The high winds began on the morning of January 30 and continued until mid-afternoon when the monitoring period ended. During the most critical late-night period, the wind was calm and did not affect the measurements. Also, there was no precipitation during this period, when the lowest noise levels were measured. The hourly sound level data is presented in Table 76-1. The CNEL levels ranged from 64.4 dBA to 67.6 dBA at the two locations. These levels are typical of densely populated urban areas and they are higher than levels previously measured near residences around the site south of Ethanac Road.

Late-night background or L_{90} noise levels (Table 76-1, shaded area, L_{90}) were in the low 40's. Distant traffic maintained the background levels at these locations. Graphs of the continuous data using these statistical measures present a more complete description of the noise environment against which noise from the proposed project should be judged. The most important time period is late at night during normal sleep hours when ambient noise levels

are low because human activity is at a minimum and traffic levels have generally diminished. However, potential noise impacts at the school should only be determined through a comparison of existing daytime levels when the school is normally in session.

Table 76-1
Hourly Sound Levels in the Community of Romoland

Date	Hour	Location 1				Location 2			
		Romoland Elementary School				Northeast Corner of Romoland			
		L _{eq}	L ₁₀	L ₅₀	L ₉₀	L _{eq}	L ₁₀	L ₅₀	L ₉₀
1/29/2002	1400	78.0	78.2	63.3	54.4	72.7	73.1	64.5	54.7
"	1500	70.6	67.2	59.0	55.2	72.0	73.1	62.4	56.6
"	1600	60.2	63.8	56.1	52.4	67.7	71.0	60.7	55.9
"	1700	60.2	63.1	54.2	50.7	66.9	69.6	59.2	54.6
"	1800	62.6	63.1	54.5	50.3	65.8	68.4	56.9	50.3
"	1900	56.0	58.1	54.1	50.9	62.0	63.1	52.5	46.4
"	2000	54.7	56.6	52.3	49.0	59.2	60.4	51.3	47.2
"	2100	61.0	62.9	51.5	47.4	61.6	62.8	51.1	47.1
"	2200	56.2	55.7	51.2	47.2	59.3	56.5	50.0	46.1
"	2300	51.8	53.6	49.6	46.3	52.7	53.0	48.3	45.1
"	2400	48.1	50.9	46.7	43.6	49.7	51.5	46.2	42.8
1/30/2002	0100	50.3	50.7	45.9	42.4	54.0	50.7	44.7	41.5
"	0200	47.2	49.1	45.4	42.9	46.9	48.1	43.8	40.3
"	0300	49.7	51.0	47.6	45.0	53.1	48.4	44.8	41.9
"	0400	53.7	55.7	52.3	47.7	58.6	56.7	52.0	46.2
"	0500	57.0	58.5	56.3	54.1	58.1	58.3	54.0	51.1
"	0600	61.0	63.1	58.8	56.0	63.6	64.8	57.1	53.2
"	0700	63.4	67.0	60.2	56.1	68.6	73.4	60.0	52.7
"	0800	62.5	65.9	59.1	56.0	66.5	70.1	57.9	53.4
"	0900	61.3	64.1	58.0	54.7	64.8	66.0	57.3	52.6
"	1000	60.3	62.6	57.8	54.5	64.2	66.2	57.2	53.0
"	1100	61.6	64.3	59.5	55.6	64.5	67.1	58.4	54.2
"	1200	63.7	67.6	60.5	57.1	65.7	68.9	58.9	53.8
"	1300	71.2	71.6	63.7	57.7	69.8	71.0	60.5	55.4
"	1400	65.3	64.9	59.6	55.3	70.7	67.7	59.0	54.7
L _{eq} (24)		61.7				65.3			
DNL		64.1				67.3			
CNEL		64.4				67.6			
Average			61.2	55.1	51.3		63.2	54.7	50.0

Note: Nighttime hours are shaded.

The data graphs are presented in Figures 76-1 and 76-2. The top graph in each figure is a plot of the 1-minute L_{eq} levels. The effects of individual events, such as loud car or truck passages, can be seen as spikes in these graphs. The lower graph is of the hourly equivalent noise levels and the statistical levels exceeded 50 and 90 percent of each hour (L_{eq} , L_{50} and L_{90}). Of the curves in these graphs, the L_{90} background or residual sound levels (lower curve in lower graphs) are the most important for impact assessment purposes. The L_{90} level would be most affected by a new facility, such as a power plant, that generally produces a constant level of noise. The L_{eq} level, on which the L_{dn} level is based, will likely be the least affected.

The L_{90} pattern at Location 1 (Figure 76-1, lower curve of the lower graph) is typical with lower levels at night and higher levels during the day. The upper graph in the figure shows the noise level at a higher resolution of 1-minute intervals. The tallest spikes are likely due to loud vehicles passing by on the adjacent streets or other activity very near the microphone.

The graphs for Location 2 (Figure 76-2) indicate similar noise levels occurring in a similar pattern. The sources of noise were also similar at both locations.

In summary, the existing noise environment is as expected for an urban area. Traffic is the primary source of noise at both locations.

Figure 76-1
Location 1 - Romoland Elementary School
Corner of Antelope & Adams Streets

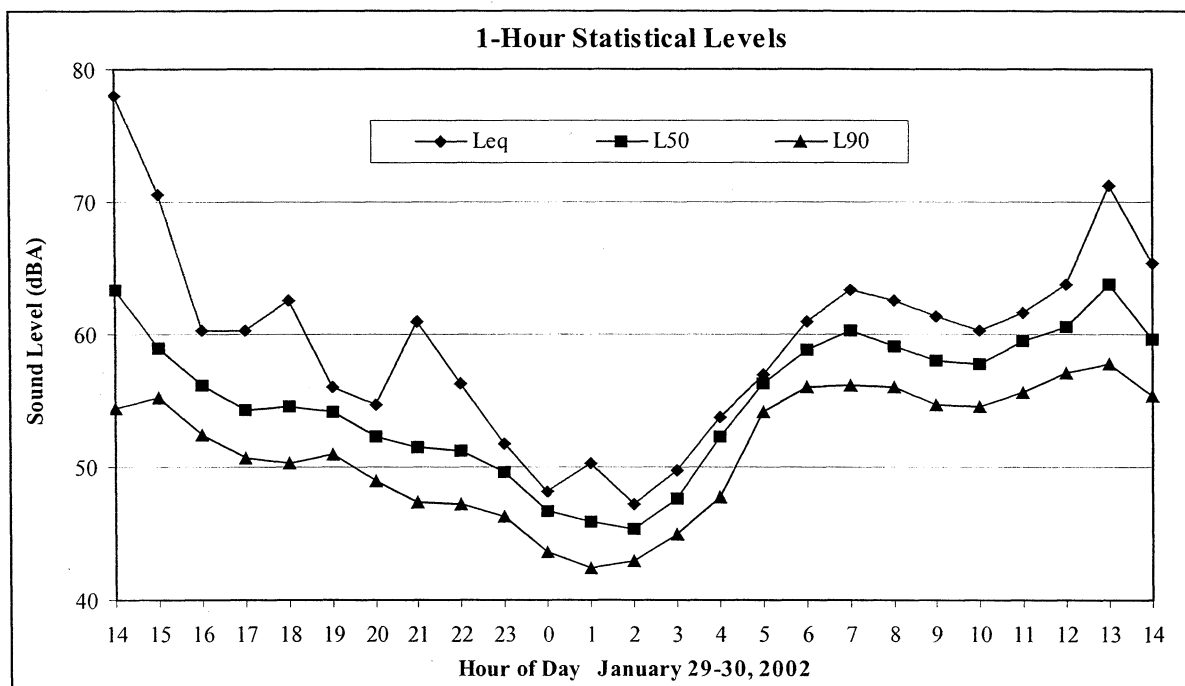
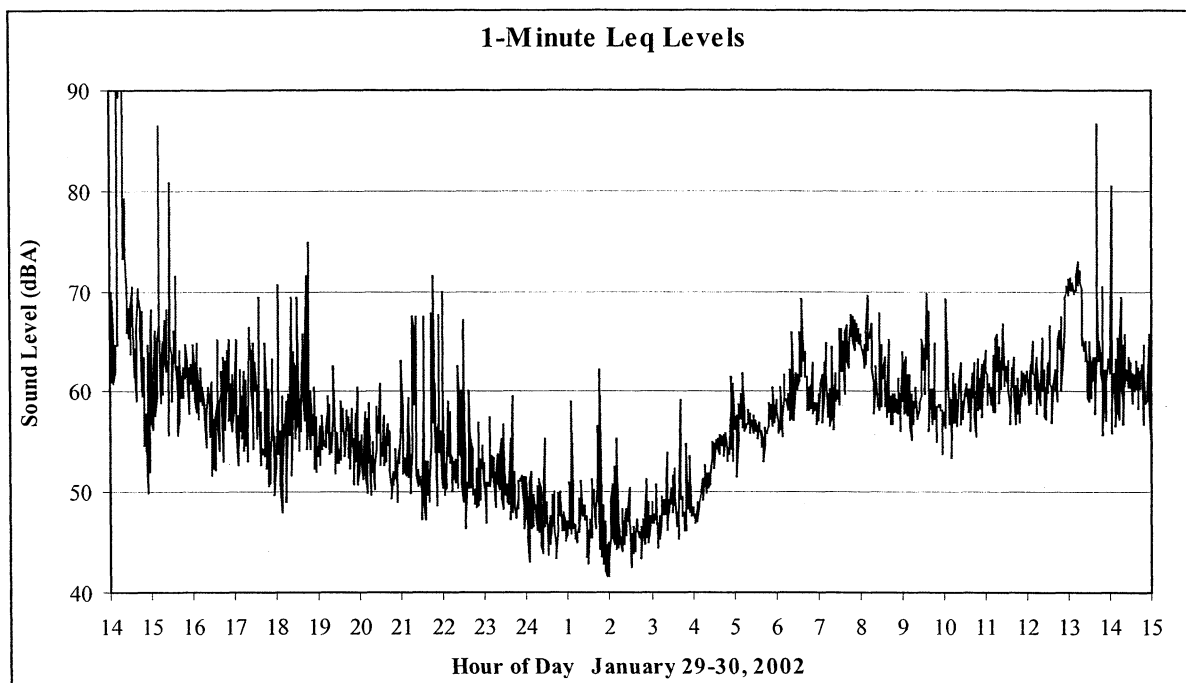


Figure 76-2
Location 2 Northeast Corner of Community of Romoland
Intersection of Antelope and 3rd Streets

